AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-15 (Canceled).

16. (Currently Amended) A self-extinguishing cable comprising a conductor and a flame-retardant coating, said flame-retardant coating comprising:

(a) an ethylene homopolymer or copolymer having a density of from 0.905 to 0.970 g/cm^3, wherein said ethylene homopolymer or copolymer are: ethylene homopolymers; copolymers of ethylene with an alpha-olefin; copolymers of ethylene with an ethylenically unsaturated ester; or mixtures thereof;

(b) a copolymer of ethylene with at least one alpha-olefin, and optionally with a diene, said copolymer (b) having a density of from 0.860 to 0.904 g/cm^3, and having a composition distribution index greater than 45%, said index being defined as the weight percentage of copolymer molecules having an alpha-olefin content within 5% of the average total molar content of alpha-olefin;

(c) natural magnesium hydroxide in an amount such as to impart flame-retardant properties;

wherein at least one of the polymeric components (a) and (b) contains hydrolyzable organic silane groups grafted onto the polymer chain for compatibilization of the natural magnesium hydroxide with the polymeric components;

wherein said flame retardant coating has no appreciable cross-linking.

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17. (Previous presented) The cable according to claim 16, wherein the polymeric component (a) is high density polyethylene (HDPE) having a density of at least 0.940 g/cm^3; medium density polyethylene (MDPE) having a density of from 0.926 to 0.940 g/cm^3; low density polyethylene (LDPE) or linear low density polyethylene (LLDPE) having a density of from 0.910 to 0.926 g/cm^3; copolymers of ethylene with at least one ester, wherein said ester is an alkyl acrylate, alkyl methacrylate or vinyl carboxylate, wherein the alkyl group of said ester is linear or branched, has from 1 to 8 carbon atoms, while the carboxylate group of said ester is linear or branched, and has from 2 to 8 carbon atoms.

18. (Previously presented) The cable according to claim 16, wherein the polymeric component (b) has a Molecular Weight Distribution (MWD) index of less than 5.

19. (Previously presented) The cable according to claim 16, wherein the polymeric component (b) is produced by copolymerization of ethylene with an alpha-olefin, and optionally with a diene, in the presence of a single-site catalyst.

20. (Previously presented) The cable according to claim 16, wherein the natural magnesium hydroxide is obtained by grinding a mineral based on magnesium hydroxide.

21. (Previously presented) The cable according to claim 16, wherein the amount of natural magnesium hydroxide is predetermined so as to obtain a Limited Oxygen Index (LOI) value of at least 30, measured on compression moulded plates according to ASTM Standard D-2863.

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22. (Previously presented) The cable according to claim 16, wherein the amount of natural magnesium hydroxide is between 10 and 90% by weight with respect to the total weight of the composition.

23. (Previously presented) The cable according to claim 16, wherein the amount of the ethylene homopolymer or copolymer (a) is such that the flame-retardant coating obtained after extrusion has a value of thermocompression resistance, measured at 90°C according to CEI standard 20-34/3-1, greater than 50%.

24. (Previously presented) The cable according to claim 16, wherein the amount of the copolymer of ethylene with an alpha-olefin (b) is such that the flame-retardant coating obtained after extrusion has an elongation at break, measured according to CEI standard 20-34 § 5.1, of at least 100% and a modulus at 20%, measured according to CEI standard 20-34 § 5.1, of less than 12 MPa.

25. (Previously presented) The cable according to claim 16, wherein the flame-retardant coating comprises, as a polymer matrix, a mixture comprising from 10 to 60% by weight of an ethylene homopolymer or copolymer (a), and from 40 to 90% by weight of a copolymer (b), the percentages being referred to the total weight of the polymeric components (a) and (b).

26. (Previously presented) The cable according to claim 16, wherein the hydrolyzable organic silane groups are grafted onto the polymer chain during compounding of the flame-retardant coating by adding to the polymer mixture a radical initiator and an organic silane compound containing at least one hydrolyzable group and at least one ethylenically unsaturated hydrocarbon group.

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27. (Previously presented) The cable according to claim 26, wherein the organic silane is added to the mixture in an amount of from 0.5 to 10 parts by weight with respect to 100 parts by weight of the polymer matrix.

28. (Previously presented) The cable according to claim 26, wherein the radical initiator is added to the mixture in an amount of from 0.01 to 1 part by weight with respect to 100 parts by weight of the polymer matrix.

29. (Currently amended) A flame-retardant composition comprising:

(a) an ethylene homopolymer or copolymer having a density of from 0.905 to 0.970 g/cm^3, wherein said ethylene homopolymer or copolymer are: ethylene homopolymers; copolymers of ethylene with an alpha-olefin; copolymers of ethylene with an ethylenically unsaturated ester; or mixtures thereof;

(b) a copolymer of ethylene with at least one alpha-olefin, and optionally with a diene, said copolymer (b) having a density of from 0.860 to 0.904 g/cm^3, and having a composition distribution index greater than 45%, said index being defined as the weight percentage of copolymer molecules having an alpha-olefin content with 50% of the average total molar content of alpha-olefin;

(c) natural magnesium hydroxide in an amount such as to impart flame-retardant properties;

wherein at least one of the polymeric components (a) and (b) contains hydrolyzable organic silane groups grafted onto the polymer chain for compatibilization of the natural magnesium hydroxide with the polymeric components;

wherein said flame retardant composition has no appreciable cross-linking.

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30. (Currently amended) A method for producing a self-extinguishing cable, said method comprising the following steps: (1) preparing a polymer mixture having flame-retardant properties; and (2) extruding said mixture on a conductor optionally pre-coated with an insulating layer, wherein step (1) comprises mixing a polymer matrix with a predetermined amount of natural magnesium hydroxide, and further adding to said polymer matrix a radical initiator and an organic silane compound containing at least one hydrolyzable group and at least one ethylenically unsaturated hydrocarbon group, in order to obtain grafting of hydrolyzable organic silane groups onto the polymer chains for compatibilization of the natural magnesium hydroxide with the polymeric matrix; said polymer matrix comprising:

(a) an ethylene homopolymer or copolymer having a density of from 0.905 to 0.970 g/cm^3, wherein said ethylene homopolymer or copolymer are: ethylene homopolymers; copolymers of ethylene with an alpha-olefin; copolymers of ethylene with an ethylenically unsaturated ester; or mixtures thereof;

(b) a copolymer of ethylene with at least one alpha-olefin, and optionally with a diene, said copolymer (b) having a density of from 0.860 o 0.904 g/cm^3, having a composition distribution index greater than 45%, said index being defined as the weight percentage of copolymer molecules having an alpha-olefin content with 50% of the average total molar content of alpha-olefin;

wherein said flame retardant polymer mixture has no appreciable cross-linking.

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